UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/963,521	09/27/2001	Petra Ziegler	P 282413 990079BT-DIV-I	2142

909 7590 02/24/2004

PILLSBURY WINTHROP, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER	
RAMIREZ, DELIA M	

ART UNIT	PAPER NUMBER
1652	

DATE MAILED: 02/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	09/963,521	ZIEGLER ET AL.	
	Examin r	Art Unit	
	Delia M. Ramirez	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6-14 and 16-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-14 and 16-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/431,099.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/27/2001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: Abstract

DETAILED ACTION

Status of the Application

Claims 6-14 and 16-18 are pending.

Applicant's preliminary amendment canceling claims 1-5, 15, and adding claims 16-18, in a communication filed on 9/27/2001, is acknowledged.

Specification

1. The specification is objected to for the following reasons. While the first paragraph of the specification contains a sentence with a specific reference to a prior application, the status of the application recited has not been updated. Appropriate correction is required.

Priority

2. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. 119(a)-(d) to GERMANY 199 41 478.5 filed on 09/01/1999.

3. Acknowledgment is made of a claim for domestic priority under 35 U.S.C. 120 or 121 to US application No. 09/431,099 filed on 11/01/1999.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 9/27/2001 is acknowledged. Only the abstracts of references JR and OR have been considered as these references are not in English. The remaining references in the submission are in compliance with the provisions of 37 CFR 1.97 and are being considered by the examiner.

Drawings

5. The drawings submitted on 9/27/2001 are approved by the Examiner.

Claim Objections

6. Claims 6-14 are objected to due to the recitation of "Process for" or "Process according to claim..". For clarity, it is suggested that the terms be amended to recite "A process.." or "The process according to claim...", or similar. Appropriate correction is required.

7. Claims 6-14 are objected to due to the recitation of "process.....characterized in that..". For clarity, it is suggested that the term be amended to recite "process....wherein said (the, a, an) ....", or similar. For example, claim 6 can be amended to recite "process...wherein said bacteria....", claim 13 can be amended to recite "process....wherein said process comprises the following steps....", etc. Appropriate correction is required.

8. Claim 8 is objected to due to the recitation of "vector carries the nucleotide sequence coding for ...". For clarity, it is suggested that the term be amended to recite "vector comprises the nucleic acid (or gene) encoding a threonine export carrier protein" or similar. Appropriate correction is required.

9. Claims 8-12, 14 and 17-18 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only and cannot depend from any other multiple dependent claims. See MPEP § 608.01(n). For examination purposes, (1) claim 8 will be interpreted as being directed to the process of claims 6 or 7, (2) the term "according to claims 6 to X" will be interpreted as "according to claim 6" in claims 9-12, and (3) the term "according to one or more of the preceding claims" will be interpreted as "according to claim 6" in claim 14. Claims 17-18 will be assumed to have the limitations of claims 11 and 12 as interpreted above. It is noted that, as interpreted, claims 14 and 16 are duplicates. Appropriate correction is required.

10. Claims 8-14 are objected to due to the recitation of "microorganisms" or "strain". Claims 8-14 depend upon claim 6 which recites the term "bacteria". While bacteria are microorganisms and one can have different strains of a bacterial species, the claims recite all these terms interchangeably. For consistency, it is suggested that one term be used throughout the claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112, Second Paragraph

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 6-14 and 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Claims 6, 8-9, 12-13 (claims 7, 10-11, 14, 16-18 dependent thereon) are indefinite in the recitation of "thrE gene". While the gene nomenclature used may be appropriate for C. glutamicum, the use of this nomenclature for genes encoding proteins of identical function in other organisms may not be accurate. As known in the art, genes encoding proteins of identical function in two different organisms may use different designations. For example, the ARO4 gene of Candida albicans encodes a DAHP synthase whereas the E. coli counterpart is the aroF gene. See the abstract of Sousa et al. (Microbiology 148(Pt5):1291-1303, 2002). As such, the use of gene terminology which is applicable to some organisms and not to others is confusing since the claims use this gene nomenclature with respect to any organism. For examination purposes, the term "thrE gene" will be interpreted as "gene encoding a threonine export carrier protein". If Applicants wish to use the recited terminology in the claims, it is suggested that the claims be amended to clearly indicate the organism associated with the specific gene designation. Correction is required.

14. Claims 6, 8-9 (claims 7, 10-12, 16-18 dependent thereon) are indefinite in the recitation of "bacteria are used in which nucleotide sequences coding for the thrE gene are amplified, and in particular are overexpressed" for the following reasons. First, the term "nucleotide sequences...are amplified, and in particular are overexpressed" is indefinite since as known in the art, it is nucleic acids which are amplified or overexpressed. Sequences are graphical representations of the order in which nucleotides/amino acids are arranged in a molecule. In addition, the term "in particular are overexpressed" is unclear and confusing since one cannot determine if it is further limiting the claim. For examination purposes, it will be assumed that the claim recites "bacteria comprising a gene encoding a threonine export carrier protein, and wherein the intracellular activity of said threonine export carrier protein is increased by any means". The term "amplified" has been interpreted as indicated in page 3, lines 3-10 of the specification. Correction is required.

15. Claims 9, 12-13 (claims 10-11, 14, 16-18 dependent thereon) are indefinite in the recitation of "amplified...(overexpressed)" for the following reasons. The term "amplified...(overexpressed)" is unclear as one cannot determine if what is recited in parentheses is limiting the claims or how it is limiting the claims. For examination purposes, no patentable weight will be given to the term "overexpressed". Correction is required.

16. Claim 10 is indefinite in the recitation of "microorganisms .....are fermented in altered culture media, and/or the fermentation conditions are changed" for the following reasons. As written, the term is unclear and confusing since one cannot determine what "altered culture media" is or what is the relationship between the term "microorganisms" and "fermentation conditions are changed". It is also noted that one cannot determine which fermentation conditions are changed. For examination purposes, it will be assumed that the claim is directed to the process of claim 6 wherein the bacteria are fermented under conditions which would allow overexpression of the gene encoding the threonine export carrier protein". Correction is required.

17. Claim 12 is indefinite in the recitation of "remaining genes of the metabolic pathway for threonine formation are amplified individually or jointly..." for the following reasons. The term "remaining genes of the metabolic pathway for threonine formation" is indefinite since it is unclear which are the remaining genes and the specification does not provide a description of which are the genes in the metabolic pathway for threonine formation. It is noted that in the absence of a definition as to which reactions constitute the metabolic pathway for threonine formation, the pathway may include those reactions which are required to make the precursors of threonine. The term "individually or jointly" is unclear and confusing since the amplification of the remaining genes cannot be done individually as the claim requires the amplification of the gene encoding the threonine export carrier protein also. Therefore, the claim requires at least the amplification of two genes at the same time. For examination purposes, it will be assumed that claim 12 is directed to the process of claim 6 wherein the intracellular activity of any protein involved in threonine formation is increased by any means. Thus, it will be considered a duplicate of claim 7. It is noted that the term "amplified" has been interpreted as indicated in the specification. Correction is required.

18. Claim 13 is indefinite in the recitation of "fermentation of microorganisms according to one or more of the preceding claims..." for the following reasons. In addition to being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claims, as written, it is unclear if the term "according to one or more of the preceding claims" refers to microorganisms or the fermentation of microorganisms. It is noted that the preceding claims refer to a process for producing L-threonine wherein one of the steps is the fermentation of coryneform bacteria. Also, as written, it is unclear as to which limitations in the preceding claims are applicable to the instant claim. The term "cells of the microorganisms" is unclear and confusing since a microorganism is unicellular. Furthermore, while bacteria are cells, there is no consistency in the terminology used. For examination purposes, it will be assumed that the claim is draw to "The process for producing L-threonine according to claim 6 further

comprising the steps of (a) increasing the intracellular activity of any protein, (b) enrichment of L-threonine in the medium or in the bacteria, and (c) isolation of L-threonine. Correction is required.

Claim Rejections - 35 USC § 112, First Paragraph

19. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

20. Claims 6-14 and 16-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 6, 8, 10 are directed to a process for producing L-threonine wherein said process comprises fermentation of genera of coryneform bacteria, wherein said bacteria comprises a genus of genes encoding any threonine export carrier protein, and wherein the intracellular activity of said threonine export carrier proteins is increased by any means. See Claim Rejections under 35 USC 112, second paragraph and the definition of gene amplification provided in the specification (page 3, lines 3-10). Claims 7 and 12 are directed to the process of claim 6 with the added limitation that the intracellular activity of other proteins encoded by genera of genes which are involved in threonine biosynthesis is increased by any means. Claim 9 is directed to the process of claim 6 with the added limitation that the bacteria contains a genus of metabolite or antimetabolite resistance mutations. Claim 11 is directed to the process of claim 6 with the added limitation that any metabolic pathway which reduces threonine formation is at least partially blocked by any means. Claim 13 is directed to the process of claim 6 with the added limitation that the intracellular activity of any other protein is increased by any means. Claims 14 and 16 are directed to the process of claim 6 with the added limitation that the bacteria is from the

genus corynebacterium. Claims 17-18 are directed to the process of claims 11-12, respectively, with the added limitation that the bacteria is from the genus corynebacterium.

While the specification discloses the structure of the C. glutamicum thrE gene and the production of threonine with B. flavum transformed with a plasmid containing the C. glutamicum thrE gene, the specification is silent in regard to (1) the structures of other genes (from other organisms) encoding threonine export carrier proteins, (2) the structures of other coryneform bacteria (or corynebacteria) genes involved in threonine biosynthesis or in threonine degradation, (3) which are the metabolic pathways that reduce threonine formation in any coryneform bacteria (or corynebacteria) which can be partially switched off without compromising cell viability, (4) all the methods to partially switched off the metabolic pathways of (3), such as inactivation of key genes or addition of compounds which would block certain proteins, (5) the structures of other genes encoding proteins of any function which when overexpressed in conjunction with any gene encoding a threonine export carrier protein would result in an increase in threonine production, (6) all the methods which can increase the intracellular activity of the proteins recited in the claims, such as structural modifications in the transcriptional control elements to increase transcription, or structural modifications in the coding region of the genes encoding the proteins such that the protein's activity is enhanced compared to the wild-type counterpart, and (7) all the metabolite or antimetabolite resistance mutations in any coryneform bacteria or corynebacteria encompassed by the claims.

The genera of genes, methods, and mutations required to practice the claimed invention are large, and variable genera. With regard to the genera of genes required, while a sufficient written description of a genus of nucleic acids may be achieved by a recitation of a representative number of nucleic acids defined by their nucleotide sequence or a recitation of structural features common to members of the genus, which features constitute a substantial portion of the genus., in the instant case, there is no recitation of recitation of a structural feature which is representative of all members of the genera recited.

Furthermore, while one could argue that the recited genus of genes is adequately described by the disclosure of the C. glutamicum thrE gene and those genes known in the art, it is noted that the art teaches that even high structural homology may not result in functional homology. For example, Witkowski et al. (Biochemistry 38:11643-11650, 1999) teaches that one amino acid substitution transforms a β-ketoacyl synthase into a malonyl decarboxylase and completely eliminates β-ketoacyl synthase activity. Seffernick et al. (J. Bacteriol. 183(8):2405-2410, 2001) teaches that two naturally occurring Pseudomonas enzymes having 98% amino acid sequence identity catalyze two different reactions: deamination and dehalogenation, therefore having different function. Broun et al. (Science 282:1315-1317, 1998) teaches that as few as four amino acid substitutions can convert an oleate 12-desaturase into a hydrolase and as few as six amino acid substitutions can transform a hydrolase to a desaturase. Therefore, in the absence of any additional information correlating structure with function, many structurally unrelated nucleic acids are encompassed by the genera. The specification only discloses a few species of the genera of genes, mutations, and methods required to practice the claimed invention, which is insufficient to put one of ordinary skill in the art in possession of all attributes and features of the claimed invention. Therefore, one skilled in the art cannot reasonably conclude that the applicant had possession of the claimed invention at the time the instant application was filed.

21. Claims 6-14 and 16-18 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for producing L-threonine wherein the method comprises fermentation of C. glutamicum or B. flavum transformed with a plasmid containing the C. glutamicum thrE gene, wherein the thrE gene is overexpressed by increasing the copy number of said gene, does not reasonably provide enablement for (1) a method for producing L-threonine wherein the method comprises fermentation of any coryneform bacteria or any corynebacteria, wherein the bacteria comprises any gene encoding a threonine export carrier protein, and wherein the intracellular activity of said protein is

increased by any means, (2) a method as described in (1) wherein the intracellular activity of other proteins encoded by any gene involved in threonine biosynthesis is increased by any means, (3) a method as described in (1) wherein the bacteria contains any metabolite or antimetabolite resistance mutations, (4) the method of (1) wherein any metabolic pathway in the bacteria which reduces threonine formation is at least partially blocked by any means, or (5) the method of (1) wherein the intracellular activity of any other protein from any source is increased by any means. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The criteria for undue experimentation, summarized in *re Wands*, 8, USPQ2nd 1400 (Fed. Cir. 1988) are: 1) quantity of experimentation necessary, 2) the amount of direction or guidance presented, 3) the presence and absence of working examples, 4) the nature of the invention, 5) the state of prior art, 6) the relative skill of those in the art, 7) the predictability or unpredictability of the art, and 8) the breath of the claims.

The scope of the claims as described above, is not commensurate with the enablement provided with regard to the extremely large number of genes, metabolite or antimetabolite resistance mutations, and methods to increase the intracellular activity of unknown proteins or partially block metabolic pathways which reduce threonine formation, as encompassed by the claims. As indicated above, the specification fails to disclose (1) the structures of other genes (from other organisms) encoding threonine export carrier proteins, (2) the structures of genes from coryneform bacteria or corynebacteria involved in threonine biosynthesis or in threonine degradation, (3) which are the metabolic pathways that reduce threonine formation in any coryneform bacteria (or corynebacteria) which can be partially switched off without compromising cell viability and methods to partially switched off those metabolic pathways, such as inactivation of key genes or addition of compounds which would block certain proteins, (4) the structures of other genes from any organism encoding proteins of any function which when overexpressed

in conjunction with any gene encoding a threonine export carrier protein would result in an increase in threonine production, (5) all the methods which can increase the intracellular activity of the proteins recited in the claims, such as structural modifications in the transcriptional control elements to increase transcription, or structural modifications in the coding region of the genes encoding the proteins such that the protein's activity is enhanced compared to the wild-type counterpart, and (6) all the metabolite or antimetabolite resistance mutations in any coryneform bacteria or corynebacteria encompassed by the claims.

The argument can be made that the specification is enabling for the claimed invention as it relates to the genes required to practice the claimed method, since one could isolate other genes required to practice the claimed method by structural homology using the structures of genes disclosed in the specification or the prior art. However, the state of the art, as evidenced by Broun et al., Seffernick et al., and Witkowski et al., clearly teaches the unpredictability of determining whether structural homologs are also functional homologs. See discussion above. Therefore, due to the lack of relevant examples, the amount of information provided, the lack of knowledge about the structures of the genes recited in the claims, methods to increase intracellular activity of unknown proteins, methods to partially switch off unknown pathways, metabolite and antimetabolite resistance mutations, and the unpredictability of the prior art in regard to assigning function based on structural homology, one of ordinary skill in the art would have to go through the burden of undue experimentation in order to practice the claimed method. Thus, Applicant has not provided sufficient guidance to enable one of ordinary skill in the art to make and use the invention in a manner reasonably correlated with the scope of the claims.

Double Patenting

22. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759

F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and; *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

23. Claims 6-8, 10-14, 16-18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 6596516 (common inventors Petra Ziegler, Lothar Eggeling, Hermann Sahm and Georg Thierbach). An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim not is patentably distinct from the reference claim(s) because the examined claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985). Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons.

Claim 6 of U.S. Patent No. 6596516 is directed in part to a fermentation process for the production of L-threonine in coryneform bacteria, wherein said bacteria is modified such that the glyA gene (encoding serine hydroxymethyltransferase) is attenuated and wherein one or more genes selected from the group consisting of (a) gene encoding homoserine dehydrogenase, (b) gene encoding glyceraldehyde 3-phosphate dehydrogenase, (c) gene encoding pyruvate carboxylase, (d) gene encoding malate:quinone oxidoreductase, and (e) gene encoding threonine export carrier protein are overexpressed at the same time the bacteria are fermented. Homoserine dehydrogenase catalyzes the formation of homoserine, which is a precursor of threonine, glyceraldehyde 3-phosphate dehydrogenase catalyzes one of the reactions in glycolysis (formation of 1,3 bisphoglycerate), pyruvate carboxylase catalyzes the formation of oxaloacetate from pyruvate and malate:quinone oxidoreductase catalyzes the formation of

oxaloacetate from malate. Serine hydroxymethyltransferase catalyzes the formation of glycine from threonine.

Claims 6, 7, 10, 11, and 12 of the instant application are directed in part to (a) a process for producing L-threonine in coryneform bacteria wherein said bacteria comprises a gene encoding a threonine export carrier protein (thrE gene), and wherein said gene is overexpressed, (b) the process of (a) wherein at least one gene of the threonine biosynthesis pathway is overexpressed, (c) the process of (a) wherein any gene is overexpressed, or (d) the process of (a) wherein any metabolic pathway which reduces threonine formation is partially blocked. Since homoserine dehydrogenase, glyceraldehyde 3-phosphate dehydrogenase, pyruvate carboxylase, and malate:quinone oxidoreductase catalyze the formation of precursors of threonine (i.e. oxaloacetate, homoserine and 1,3 bisphoglycerate), these genes would be considered as part of the threonine biosynthesis pathway. In view of the fact that serine hydroxymethyltransferase catalyzes the formation of glycine from threonine, attenuating the expression of a gene encoding this enzyme would constitute partially blocking a metabolic pathway which reduces threonine formation. Therefore, claim 6 of U.S. Patent No. 6596516 would anticipate claims 6, 7, 10, 11, 12 and 13 of the instant application as written.

Claims 8, 13-14, 16-18 of the instant application are directed in part to (a) the process of claim 6 or 7, as indicated above, wherein the bacteria are transformed with a vector which comprises the gene encoding the threonine export carrier protein, (b) the process of claim 6, 11 or 12 as described above wherein the bacteria is corynebacteria, or (c) the process of claim 6 wherein any other gene can be overexpressed and further comprises enrichment of the L-threonine in the medium or the bacteria and isolation of the L-threonine. Claim 8 is deemed obvious over claim 6 of U.S. Patent No. 6596516 in view of the fact that overexpression of a nucleic acid by using a vector such that the copy number is increased is well known and widely used in the art. Claim 13 is deemed obvious over claim 6 of U.S. Patent No. 6596516 since the subject matter claimed is an obvious variation of a preferred embodiment in

the patent, as evidenced by claims 2 and 9 of U.S. Patent No. 6596516, which are directed to a process for the production of L-threonine or L-isoleucine by fermenting coryneform bacteria in which the glyA gene has been attenuated, further comprising concentrating the amino acid produced in the medium or the bacteria, and isolating the amino acid. Claims 14 and 16-18 are deemed obvious over claim 6 of U.S. Patent No. 6596516 since the subject matter claimed is an obvious variation of a preferred embodiment in the patent, as evidenced by claim 8 of U.S. Patent No. 6596516, which are directed to a process for the production of L-threonine or L-isoleucine by fermenting corynebacteria in which the glyA gene has been attenuated.

Conclusion

24. No claim is in condition for allowance.

25. Certain papers related to this application may be submitted to Art Unit 1652 by facsimile transmission. The FAX number is (703) 872-9306. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If Applicant submits a paper by FAX, the original copy should be retained by Applicant or Applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED, so as to avoid the processing of duplicate papers in the Office.

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delia M. Ramirez whose telephone number is (571) 272-0938. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Ponnathapura Achutamurthy can be reached on (571) 272-0928. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1234.

Delia M. Ramirez, Ph.D.
Patent Examiner
Art Unit 1652

DR
February 11, 2004

REBECCA E. PROUTY
PRIMARY EXAMINER
GROUP ~~1800~~ 1600